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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,308	12/03/2001	Satyadev R. Patel	P19-US	7909

7590 08/04/2004

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EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/005,308	<b>Applicant(s)</b> PATEL ET AL.	
	<b>Examiner</b> Nathan W. Ha	<b>Art Unit</b> 2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-132 is/are pending in the application.
- 4a) Of the above claim(s) 1-55 and 124-132 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 56-58, 60-69, 71, 72, 78, 79, 94-96 and 106-108 is/are rejected.
- 7) ☒ Claim(s) 59, 70, 73-77, 80-93, 97-105, 109-123 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 56-58, 60-69, 71-72, 78-79, 94-96, 106-108 are rejected under 35 U.S.C. 102(b) as being anticipated by Huibers, US 6,046,840, previously cited.

In regard to claims 56, 106, and 124, in figs. 1 and 3A-3B, for example, Huibers discloses a method for forming a MEMS device, comprising:

providing a first wafer 1;

providing a second wafer 34;

providing a sacrificial layer 26 on or in the first wafer

forming a plurality of MEMS elements on the sacrificial layer;

releasing the plurality of MEMS devices by etching away the sacrificial layer. See col. 7, lines 61-65;

mixing one or more spacer elements into an adhesive or providing one or more spacer elements 44 separately from the adhesive for separating the wafers during and after bonding. See col. 9, line 21; applying the adhesive to one or both of the first and second

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wafers. See col.9, lines 55-60;

bonding the first and second wafers together with the spacer elements therebetween so that the first and second wafers are held together in a spaced apart relationship as a wafer assembly. See col. 9, lines 55-60; and

singulating the wafer assembly into individual dies.

In regard to claim 57, wherein the releasing comprises providing an etchant selected from a noble gas fluoride. See col.9, lines 30-33.

In regard to claims 58, wherein the releasing is including stiction treatment. See col. 18, lines 24-25.

In regard to claim 60, 107-108, wherein the stiction treatment is followed by said bonding.

In regard to claim 61, wherein the time from releasing to bonding is less than 6 hours. Col. 9 and lines 54-60 suggest that the bonding process is made right after releasing process.

In regard to claims 62-63, wherein the first wafer is an optically transmissive wafer . See col. 6, lines 41-42.

In regard to claims 64-65, 78, wherein the second wafer is a semiconductor wafer, silicon. See col. 9, lines 58-59.

In regard to claims 66-68, 79, wherein the first and second wafers are bonded together with an adhesive, epoxy. See col. 9, lines 55-60.

In regard to claims 69, 82, wherein the wafer assembly is separated into individual dies. See fig. 13.

In regard to claim 72, '840 further comprises providing spacers 44 on one or both of the first and second wafers prior to bonding. See also fig. 13

In regard to claim 71, '840 further comprises providing a spacing wafer between the first and second wafers. See fig. 13, for example.

In regard to claim 94, wherein the plurality of MEMS devices are optical. See col. 6, lines 62-65.

In regard to claim 95, '840 further comprises packaging the wafer assembly dies. See fig. 13.

In regard to claim 96, wherein the MEMS devices are an array of micromirrors. See fig. 13.

***Allowable Subject Matter***

3. Claims 59, 70, 73-77, 80-93, 97-105, 109-123 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

4. Applicant's arguments filed 5/24/04 have been fully considered but they are not persuasive. For instance, Applicants contend that the cited art does not show the steps of using adhesive to glue the two substrates together. This limitation can be found in the cited art at col. 9, lines 55-60 where the substrates 20 and 34 are held together or glued together by epoxy. Figure 13 shows the fact that the wafer has being singulated into individual chips.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Ha  
July 31, 2004



LONG PHAM  
PRIMARY EXAMINER